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PATENT
ATTORNEY DOCKET NO. 041993-5227

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
Soon-Young PARK et al.) Confirmation No. 3821
Application No.: 10/673,144) Group Art Unit: 2871
Filed: September 30, 2003) Examiner: D. Nguyen
For: LIQUID CRYSTAL DISPLAY DEVICE) **Mail Stop Appeal Brief- Patents**
AND METHOD FOR REMOVING)
RESIDUAL CHARGE)

Commissioner for Patents
U.S. Patent and Trademark Office
Mail Stop Appeal Brief - Patents
Alexandria, VA 22314

Sir:

RESPONSE TO NOTIFICATION OF NON-COMPLIANT APPEAL BRIEF

In response to the Notification of Non-Compliant Appeal Brief issued November 14, 2006, the period for response to which extends through December 14, 2006, entry of the accompanying *Revised Appeal Brief* is respectfully requested along with the following remarks.

In the Notification, the Examiner alleges that "the brief does not present an argument for the group of claims 6, 13, and 19 as well as does not state that group stand and fall together [with] the group of claims 1-5, 7-12, 14-18, 20, 21, 23, and 24." Accordingly, the accompanying *Revised Appeal Brief* clearly includes the subheading "Claims 1-24," thereby satisfying the requirement, as explicitly directed by MPEP 1205.02 that "[c]laims argued as a

group should be placed under a subheading identifying the claims by number.” Thus, since all of claims 1-24 are rejected under 35 U.S.C. § 103(a) in view of Nagata et al., claims 1-24 have been explicitly identified under the subheading “Claims 1-24.”

With regard to the Examiner’s allegation that the Appeal Brief is defective because the appeal brief “does not state that group [claims 6, 13, and 19] stand and fall together [with] the group of claims 1-5, 7-12, 14-18, 20, 21, 23, and 24,” Appellants respectfully assert that the requirement to list which claims stand or fall together has long been abandoned as a requirement for a compliant Appeal Brief. Thus, if the Examiner intends to maintain the requirement that an explicit “stand or fall” statement be required, then Appellants respectfully request the Examiner to provide the explicitly citation from the MPEP that a “stand or fall” statement is required.

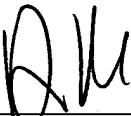
In summary, Appellants respectfully assert that the accompanying *Revised Appeal* Brief is fully and completely compliant with the requirements set forth under 37 C.F.R. § 41.37. However, if the Examiner is still unconvinced regarding compliance of the *Revised Appeal* Brief, the Examiner is cordially invented to contact Appellants’ undersigned representative to discuss the matter.

If there are any other fees due in connection with the filing of this response,
please charge the fees to our Deposit Account No. 50-0310.

Respectfully submitted,

MORGAN, LEWIS & BOCKIUS LLP

By: _____


David B. Hardy
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Dated: December 5, 2006

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APPELLANTS' REVISED BRIEF UNDER 37 C.F.R. § 41.31

This *revised* brief is in response to a Notification of Non-Compliant Appeal Brief issued on November 14, 2006, the period for response to which extends through December 14, 2006.

1. The Real Party In Interest

The real party in interest in this appeal is LG.Philips LCD Co, Ltd. of Seoul, Korea.

2. Related Appeals and Interferences

Appellant is not aware of any other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in the appeal.

3. Status of Claims

The status of the claims is as follows:

Claims rejected: 1-21, 23, and 24

Claims objected to: none.

Claims allowed: none.

Claims withdrawn: 22 and 25.

Claims canceled: none.

Claims appealed: 1-21, 23, and 24.

4. Status of Amendments

No Amendments have been entered to date. Specifically, none of the originally filed claims have been amended, and all responses to outstanding Office Actions have been Requests for Reconsideration. Most recently, on March 28, 2006, Appellants filed a Request for Reconsideration under 37 C.F.R. § 1.116 in response to the Final Office Action dated December 29, 2005. Accordingly, Appellants filed a Notice of Appeal on June 28, 2006, and appealed claims are attached as Claims Appendix to this brief.

5. Summary of the Claimed Subject Matter

An aspect of Appellants' present invention relates generally to a liquid crystal display device and a method for removing residual charge from a liquid crystal display device.

Independent Claim 1

With respect to independent claim 1, as discussed in Appellants' specification beginning at paragraph [0024] on page 9 and shown in FIGs. 3 and 4, a liquid crystal display device for removing residual charge including a plurality of data lines 200 and a plurality of gate lines 210 arranged along vertical and horizontal directions, respectively, on a transparent substrate (not shown), a source driver 250 for supplying data voltage to the data lines 200, a gate driver 260 for supplying gate voltage to the gate lines 210, and a plurality of common voltage lines 220 connected to the data lines 200 and the gate lines 210 through a plurality of static electricity preventing units 280, wherein at least one of the static electricity preventing units 280 is directly connected to the source driver 250.

Independent Claim 8

With regard to independent claim 8, as discussed in Appellants' specification beginning at paragraph [0024] on page 9 and shown in FIGs. 3 and 4, a liquid crystal display device for removing residual charge includes a plurality of data lines 200 and a plurality of gate lines 210 arranged along vertical and horizontal directions, respectively, on a transparent substrate (not shown), a source driver 250 for supplying data voltage to the data lines 200, a source printed circuit board 270 for supplying a gate signal, a data signal, and a control signal to the source driver 250, a gate driver 260 for supplying gate voltage to the gate lines 210, and a plurality of common voltage lines 220 connected to the data lines 200 and the gate lines 210 through a plurality of static electricity preventing units 280, wherein at least one pathway of the residual charge flows to ground directly through the source driver 250 and the source printed circuit board 270.

Independent Claim 14

With regard to independent claim 14, as discussed in Appellants' specification beginning at paragraph [0024] on page 9 and shown in FIGs. 3 and 4, a liquid crystal display device for removing residual charge includes a plurality of data lines 200 and a plurality of gate lines 210 arranged along vertical and horizontal directions, respectively, on a transparent substrate (not shown), a source driver 250 for supplying data voltage to the data lines 200, a source printed circuit board 270 for supplying a gate signal, a data signal, and a control signal to the source driver 250, a gate driver 260 for supplying gate voltage to the gate lines 210, and a plurality of common voltage lines 220 connected to the data lines 200 and the gate lines 210 through a plurality of static electricity preventing units 280, wherein at least one pathway of the residual charge flows to ground through driver circuitry of the source driver 250 and the source printed circuit board 270.

Independent Claim 20

With regard to independent claim 20, as discussed in Appellants' specification beginning at paragraph [0024] on page 9 and shown in FIGs. 3 and 4, a method for removing residual charge from a liquid crystal display device includes providing a first dummy line 230 connected to each one of a plurality of gate lines 210, providing a second dummy line 240 connected to each of a plurality of data lines 200, providing a plurality of static electricity preventing units 280 between each of the gate lines 210 and the first dummy line 230, between each of the data lines 200 and the second dummy line 240, and between the first and second dummy lines 230 and 240, providing a source driver 250 for supplying data voltage to the data lines 200, providing a source printed circuit board 270 for supplying voltage signals to the source driver 250, providing a gate driver 260 for supplying gate voltage to the gate lines 210, and providing a plurality of common voltage lines 220 connected to the data lines

200 and the gate lines 210 through the plurality of static electricity preventing units 280, wherein at least one pathway of the residual charge flows to ground from the first dummy line 230 through the source driver 250 and the source printed circuit board 270.

Independent Claim 23

With regard to independent claim 20, as discussed in Appellants' specification beginning at paragraph [0024] on page 9 and shown in FIGs. 3 and 4, a method for removing residual charge from a liquid crystal display device includes providing a liquid crystal panel, the liquid crystal panel including a plurality of data lines 200 and a plurality of gate lines 210 arranged along vertical and horizontal directions, respectively, on a transparent substrate (not shown), a source driver 250 for supplying data voltage to the data lines 200, a source printed circuit board 270 for supplying a gate signal, a data signal, and a control signal to the source driver 250, a gate driver 260 for supplying gate voltage to the gate lines 210, and a plurality of common voltage lines 220 connected to the data lines 200 and the gate lines 210 through a plurality of static electricity preventing units 280, connecting at least one pathway to ground through the source driver 250 and the source printed circuit board 270, and discharging the residual charge through the pathway.

6. **Grounds of Rejection To Be Reviewed On Appeal**

Claims 1-5, 7-12, 14-18, 20, 21, 23, and 24 stand rejected under 35 U.S.C. § 102(e) as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being obvious over Nagata et al. (US 6,624,857).

Claims 6, 13, and 19 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Nagata et al. (US 6,624,857).

7. **Argument**

(i) **Rejections under 35 U.S.C. § 112, first paragraph**

No claims are presently rejected under 35 U.S.C. § 112, first paragraph.

(ii) **Rejections under 35 U.S.C. § 112, second paragraph**

No claims are presently rejected under 35 U.S.C. § 112, second paragraph.

(iii) **Rejections under 35 U.S.C. § 102**

Claims 1-5, 7-12, 14-18, 20, 21, 23, and 24 stand rejected under 35 U.S.C. § 102(e) as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being obvious over Nagata et al. (US 6,624,857).

Since the rejection is based upon 102/103 grounds, Appellants' arguments are provided under the heading entitled "Rejections under 35 U.S.C. § 103."

(iv) Rejections Under 35 U.S.C. § 103 In View of Nagata et al.

Claims 1-5, 7-12, 14-18, 20, 21, 23, and 24 stand rejected under 35 U.S.C. § 102(e) as allegedly anticipated by, or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being obvious over Nagata et al. (US 6,624,857), and claims 6, 13, and 19 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Nagata et al. (US 6,624,857). Appellants respectfully assert that the Office Action completely fails to establish any resemblance of a *prima facie* case of obviousness, or anything resembling an anticipatory rejection of Applicants' claimed invention.

Claims 1-24

Appellants' comments are directed toward the body of the rejection under 35 U.S.C. §§ 102(e) and/or 103(a), as well as the Examiner's comments provided at page 4 of the Final Office Action under the heading "Response to Arguments." Accordingly, Appellants respectfully assert that the Examiner's interpretation of Appellants' claimed invention, as it may pertain to Nagata et al., may be found at page 4 of the Final Office Action.

First, at Section 5(a) of the Final Office Action, the Examiner alleges that:

"Applicants are directed to Nagata et al. which disclose the inspection use TFTs including resistive element to avoid static-electricity breakdown (paragraph bridging col. 5 and 6, col. 21, ln 46-51, col. 38, ln. 41-52)."

However, as reproduced below, Nagata et al. is completely silent with regard to that which the Final Office Action alleges. For example, Nagata et al., from col. 5, line 63 to col. 6, line 4, discloses:

A third object of the present invention is to prevent the voltage applied to the data lines or the scanning lines from being decreased by a voltage drop in the inspection-use wiring for supplying the inspection-use signals to the data lines or the scanning lines when inspecting the liquid crystal display panel, in an active-matrix-type liquid crystal display panel including a resistive element between the data lines or the scanning lines so as to avoid the static-electricity breakdown.

As a further example, Nagata et al., at col. 21, lines 46-51, discloses:

Namely, the inspection-us TFT 26a is designed to have a wide channel so as to minimize the wiring delay determined by the time constant obtained by the product of the resistance value and the electrostatic capacity. However, an increase in the rate of occurrence of the defectiveness at the same time cannot be avoided.

As a further example, Nagata et al., at col. 38, lines 41-52, discloses:

An active matrix substrate 38 shown in FIG. 18 has almost the same structure as the active matrix substrate 36 of the fourth embodiment, shown in FIG. 15, but different in that an input protection circuit 46 is provided in the wiring where an inspection-use control signal line 24 (25) is connected to a negative-side power source of power sources for driving a gate driver 20b. Static electricity is delayed by the time constant determined by the resistance value of the input protection circuit 46, the electrostatic capacity of the inspection-use control signal line 24 (25), and the electrostatic capacity of the power source system of the external circuit, thereby preventing the breakdown.

Thus, Appellants respectfully assert that the passages relied upon by the Final Office Action, as reproduced above, fail to teach or suggest anything related to the feature of “a plurality of common voltage lines connected to the data lines and the gate lines through a plurality of static electricity preventing units,” wherein “at least one of the static electricity preventing units is directly connected to the source driver,” as required by independent claims 1, 8, 14, 20, and 23. Specifically, the above-reproduced passages of Nagata et al. merely recites that a resistive element may be disposed between the data lines “so as to avoid the static-electricity breakdown,” or a resistive element may be disposed between the scanning lines “so as to avoid the static-electricity breakdown.”

Appellants respectfully direct the Examiner’s attention to at least FIGs. 21-25 and columns 40-43 of Nagata et al., i.e., Embodiment 8, to disclose the use of resistive elements between the data lines or between the scanning lines. However, as explicitly disclosed by Nagata et al., none of the resistive elements provide for “a plurality of common voltage lines connected to the data lines and the gate lines through a plurality of static electricity

“preventing units,” as required by independent claims 1, 8, 14, 20, and 23. Thus, the passage relied upon by the Final Office Action to allege that Nagata et al. discloses Appellants’ claimed “static preventing units” is actually completely silent with regard to the combination of features set forth by independent claims 1, 8, 14, 20, and 23.

Second, at Section 5(b) of the Final Office Action, the Examiner alleges that:

“Nagata et al. do disclose that the static electricity preventing unit (46) is directly connected to the gate/source driver (col. 22, lines 6-7).”

However, Nagata et al., at col. 22, lines 6-7, discloses:

Although the explanations were made on the side of the data line 3, it is needless to say that the side of the scanning line 2 is similar. Further, in FIG. 1, the inspection-use control signal line 24 on the side of the scanning line 2 crosses the scanning line 2. However, depending on the magnitude of the electrostatic capacity between the inspection-use control signal line 24 and the scanning line 2, arranging the inspection-use control signal line 24 not to cross the scanning line is effective.

Appellants respectfully assert that the disclosure by Nagata et al. that “the side of the scanning line 2 is similar” fails to provide any teaching or suggestion for placing either the resistive elements or the input protection circuit of Nagata et al. “directly connected to the source driver,” as required by independent claims 1, 8, 14, 20, and 23. More specifically, the above-reproduced passage of Nagata et al. relied upon by the Examiner is related to placement of the inspection-use TFTs 26a and 26b and the inspection-use display signal lines 21, and is completely unrelated to the placement of either the resistive elements or the static electricity preventing unit of Nagata et al. to be “directly connected to the source driver,” as required by independent claims 1, 8, 14, 20, and 23. Thus, the passage of Nagata et al. relied upon by the Final Office Action to allege that Nagata et al. discloses Appellants’ claimed “static preventing units” is completely silent with regard to the combination of features set forth by independent claims 1, 8, 14, 20, and 23.

Third, at Section 5(c) of the Final Office Action, the Examiner alleges that:

"[g]rounding method is used to prevent the static electricity in the circuitry. Therefore, one of skilled in the art would be able to understand the word ‘interchangeable’ between source and gate as grounding to source or gate driver to discharge the static electricity. In other words, it is a common practice in the art discharging the static electricity through the gate and/or source driver(s). See also Ha (US 6,493,0047), figure 5, as evidenced to show a prevent element can be directly connected to source driver."

Appellants respectfully assert that the above-reproduced allegation by the Examiner includes numerous statements unsupported by the record. First, the allegation that “one of skilled in the art would be able to understand the word ‘interchangeable’ between source and gate as grounding to source or gate driver to discharge the static electricity” is clearly unsupported by any of the prior art of record. In addition, the Examiner provides neither documentary evidence nor any logical scientific reasoning of such a condition. As set forth by MPEP 2144.03(A):

While “official notice” may be relied on, these circumstances should be rare when an application is under final rejection or action under 37 CFR 1.113.

Accordingly, Appellants respectfully assert that the implied “Official Notice” alleged by the Examiner to make-up for the deficiencies of Nagata et al. is clearly improper since the Examiner has completely failed to provide any documentary evidence or logical scientific reasoning to demonstrate that “one of skilled in the art would be able to understand the word ‘interchangeable’ between source and gate as grounding to source or gate driver to discharge the static electricity.” Thus, Appellants respectfully assert that the Examiner has improperly taken “Official Notice” with regard to the alleged interchangeability of gate and source drivers for discharging static electricity.

However, although Ha may disclose the use of an ESD prevention circuit connected to an input pad of a data driving circuit, Ha clearly fails to teach or suggest “a plurality of

common voltage lines connected to the data lines and the gate lines through a plurality of static electricity preventing units,” as required by independent claims 1, 8, 14, 20, and 23. In addition, Ha clearly fails to teach or suggest “wherein at least one of the static electricity preventing units is directly connected to the source driver,” as required by independent claims 1, 8, 14, 20, and 23. Accordingly, Appellants respectfully assert that the implied “common knowledge” or “Official Notice” set forth by the Examiner by citing Ha fails to remedy the deficiencies of Nagata et al., as detailed above.

Second, Appellants respectfully assert that the Examiner’s citation of Ha to support the allegation that “it is common practice in the art discharging the static electricity though the gate and/or source drivers(s)” actually constitutes a rejection under 35 U.S.C. § 103(a) in view of Ha. Specifically, Appellants respectfully assert that the Examiner is citing Ha for remedying the deficiencies of Nagata et al. with regard to connecting an ESD device directly to a source/gate driver. Thus, Appellants respectfully assert that the Examiner is actually making a rejection under 35 U.S.C. § 103(a) over Nagata et al. and Ha, and not simply making a rejection using Nagata et al. alone.

However, since the subject matter of Ha and Appellants’ present invention were, at the time the invention was made, commonly owned by LG.Philips LCD Co., Ltd., then Applicants respectfully assert that Ha cannot preclude patentability of Appellants’ claimed invention under 35 U.S.C. § 103(c). Thus, Appellants respectfully assert that the documentary evidence provided by the Examiner actually conclusively proves that Appellants’ claimed invention is not *prima facie* obvious.

Third, Appellants respectfully assert that Ha fails to teach or suggest the “interchangability” of source and gate drivers of an LCD device for discharging static electricity. Specifically, Appellants respectfully assert that Ha explicitly discloses that both the gate driving circuit and data driving circuit are connected to ESD prevention circuits, and

fails to teach or suggest how the gate and data driving circuits are each “interchangable” for discharging static electricity. Accordingly, Appellants respectfully assert that Ha is completely silent with regard to how “one of skilled in the art would be able to understand the word ‘interchangeable’ between source and gate as grounding to source or gate driver to discharge the static electricity,” as alleged by the Examiner. Thus, the Final Office Action fails to: (1) remedy the admitted deficiencies of Nagata et al.; (2) establish that source and data drivers may be interchanged for discharging static electricity; and (3) establish a *prima facie* case of obvious with regard to at least independent claims 1, 8, 14, 20, and 23.

Lastly, Appellants respectfully assert that Nagata et al. explicitly discloses that:

Originally, since the inspection-use TFT 26a makes no contribution to the display after the display device is completed, the ratio of non-defective units is not allowed to depend on these inspection-use TFTs 26a. Namely, it is required that even if there is defectiveness in the inspection-use TFTs 26a, the display device should be shipped as a non-defective unit. In order to meet this requirement, the inspection-use TFTs 26a must be designed so that they can be easily cut off. Therefore, providing the inspection-use TFTs 26a on the opposite side of the source driver 20a is effective.

Accordingly, Appellants respectfully assert that the inspection-use TFTs 26a and 26b of Nagata et al. are not any type of ESD devices or “static electricity preventing units,” as claimed, and are specifically and functionally designed to not remain as a part of the LCD device. Specifically, Nagata et al. explicitly requires that the inspection-use TFTs 26a “must be designed so that they can be easily cut off.” Thus, Nagata et al. only discloses the use of a single input protection circuit 46, and thus, fails to teach or suggest “a plurality of common voltage lines connected to the data lines and the gate lines through a plurality of static electricity preventing units,” as required by independent claims 1, 8, 14, 20, and 23, and hence dependent claims 2-7, 9-13, 15-19, 21, and 24.

For at least the above reasons, Appellants respectfully assert that the rejections under 35 U.S.C. § 102(e) and/or § 103(a) should be withdrawn because Nagata et al. neither teaches

nor suggests the novel combination of features recited in independent claims 1, 8, 14, 20, and 23, and hence dependent claims 2-7, 9-13, 15-19, 21, and 24.

(v) Other Rejections

No claims are presently rejected under grounds other than those referred to above.

In view of the foregoing, Appellants respectfully request the reversal of the Examiner's rejection and allowance of the pending claims. If there are any other fees due in connection with the filing of this Appeal Brief, please charge the fees to our Deposit Account No. 50-0310.

If a fee is required for an extension of time under 37 C.F.R. §1.136 not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account No. 50-0310.

Respectfully submitted,
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By: _____ 

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Dated: December 5, 2006

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8. **Claims Appendix**

Claim 1 (Original): A liquid crystal display device for removing residual charge, comprising:

a plurality of data lines and a plurality of gate lines arranged along vertical and horizontal directions, respectively, on a transparent substrate;

a source driver for supplying data voltage to the data lines;

a gate driver for supplying gate voltage to the gate lines; and

a plurality of common voltage lines connected to the data lines and the gate lines through a plurality of static electricity preventing units,
wherein at least one of the static electricity preventing units is directly connected to the source driver.

Claim 2 (Original): The device according to claim 1, wherein the common voltage lines receive a common voltage from the gate driver.

Claim 3 (Original): The device according to claim 1, further comprising a first dummy line connected to the gate lines and the common voltage lines through the static electricity preventing units.

Claim 4 (Original): The device according to claim 3, further comprising a second dummy line connected to the data lines and the common voltage lines through the static electricity preventing units.

Claim 5 (Original): The device according to claim 1, wherein the gate driver is electrically connected to the source driver to receive a gate signal and a control signal.

Claim 6 (Original): The device according to claim 1, wherein the common voltage lines include at least one silver dot.

Claim 7 (Original): The device according to claim 1, further comprising a source printed circuit board for supplying a gate signal, a data signal, and a control signal to the source driver.

Claim 8 (Original): A liquid crystal display device for removing residual charge, comprising:

a plurality of data lines and a plurality of gate lines arranged along vertical and horizontal directions, respectively, on a transparent substrate;

a source driver for supplying data voltage to the data lines;

a source printed circuit board for supplying a gate signal, a data signal, and a control signal to the source driver;

a gate driver for supplying gate voltage to the gate lines; and

a plurality of common voltage lines connected to the data lines and the gate lines through a plurality of static electricity preventing units,

wherein at least one pathway of the residual charge flows to ground directly through the source driver and the source printed circuit board.

Claim 9 (Original): The device according to claim 8, wherein the common voltage lines receive a common voltage from the gate driver.

Claim 10 (Original): The device according to claim 8, further comprising a first dummy line connected to the gate lines and the common voltage lines through the static electricity preventing units.

Claim 11 (Original): The device according to claim 10, further comprising a second dummy line connected to the data lines and the common voltage lines through the static electricity preventing units.

Claim 12 (Original): The device according to claim 8, wherein the gate driver is electrically connected to the source driver to receive a gate signal and a control signal.

Claim 13 (Original): The device according to claim 8, wherein the common voltage lines include at least one silver dot.

Claim 14 (Original): A liquid crystal display device for removing residual charge, comprising:

a plurality of data lines and a plurality of gate lines arranged along vertical and horizontal directions, respectively, on a transparent substrate;

a source driver for supplying data voltage to the data lines;

a source printed circuit board for supplying a gate signal, a data signal, and a control signal to the source driver;

a gate driver for supplying gate voltage to the gate lines; and

a plurality of common voltage lines connected to the data lines and the gate lines through a plurality of static electricity preventing units,

wherein at least one pathway of the residual charge flows to ground through driver circuitry of the source driver and the source printed circuit board.

Claim 15 (Original): The device according to claim 14, wherein the common voltage lines receive a common voltage from the gate driver.

Claim 16 (Original): The device according to claim 14, further comprising a first dummy line connected to the gate lines and the common voltage lines through the static electricity preventing units.

Claim 17 (Original): The device according to claim 16, further comprising a second dummy line connected to the data lines and the common voltage lines through the static electricity preventing units.

Claim 18 (Original): The device according to claim 14, wherein the gate driver is electrically connected to the source driver to receive a gate signal and a control signal.

Claim 19 (Original): The device according to claim 14, wherein the common voltage lines include at least one silver dot.

Claim 20 (Original): A method for removing residual charge from a liquid crystal display device, comprising:

providing a first dummy line connected to each one of a plurality of gate lines;

providing a second dummy line connected to each of a plurality of data lines;

providing a plurality of static electricity preventing units between each of the gate lines and the first dummy line, between each of the data lines and the second dummy line, and between the first and second dummy lines;

providing a source driver for supplying data voltage to the data lines;

providing a source printed circuit board for supplying voltage signals to the source driver;

providing a gate driver for supplying gate voltage to the gate lines; and

providing a plurality of common voltage lines connected to the data lines and the gate lines through the plurality of static electricity preventing units,

wherein at least one pathway of the residual charge flows to ground from the first dummy line through the source driver and the source printed circuit board.

Claim 21 (Original): The method according to claim 20, wherein the pathway includes drive circuitry of the source driver.

Claim 23 (Original): A method for removing residual charge from a liquid crystal display device, comprising:

providing a liquid crystal panel, the liquid crystal panel including:

a plurality of data lines and a plurality of gate lines arranged along vertical and horizontal directions, respectively, on a transparent substrate;

a source driver for supplying data voltage to the data lines;

a source printed circuit board for supplying a gate signal, a data signal, and a control signal to the source driver;

a gate driver for supplying gate voltage to the gate lines; and

a plurality of common voltage lines connected to the data lines and the gate lines through a plurality of static electricity preventing units, connecting at least one pathway to ground through the source driver and the source printed circuit board; and

discharging the residual charge through the pathway.

Claim 24 (Original): The method according to claim 23, wherein the pathway includes drive circuitry of the source driver.

9. Evidence Appendix

No information is appended under this section.

10. Related Proceedings Appendix

No information is appended under this section.